

**ABSTRACT**

**METHOD AND DEVICE FOR MAGNETIC MEASUREMENT OF THE  
POSITION AND ORIENTATION OF A MOBILE OBJECT RELATIVE TO  
A FIXED STRUCTURE**

The invention relates to a method and device for magnetic measurement of the position and orientation of a mobile object relative to a fixed structure.

The device comprises, integral with the structure, a magnetic fields emitter assembly having three orthogonal emission coils ( $Bb_E$ ) defining a reference frame and a sensor assembly, integral with the mobile object, having three channels for measuring the field received on three orthogonal detection coils ( $Bb_{d1}$  to  $Bb_{d3}$ ), these channels each incorporating a feedback loop (such as  $41$ ,  $A_{21}$ ,  $Bb_{CR1}$ ,  $R_{M1}$ ) providing an output voltage (such as  $V_{c1}$ ) and a measurement current (such as  $i_{c1}$ ). A calibration voltage, at frequencies differing from the useful frequencies of the fields, is injected into the channels of the sensor without disturbing the continuous measurement by measurement acquisition channels ( $G_{acq1}$ ), while a calibration current ( $i_{cal}$ ) is superimposed on the measurement resistors. It is thus possible to identify the variable components of the system and correct the measurements through the inverse of the respective transfer functions of the channels of the sensor.

The invention applies in particular to helmet viewfinders.

Figure 7